



# ***AB 2021 Implementation Workshop II*** ***June 13, 2007***

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# ***Alameda Power & Telecom Energy Efficiency***

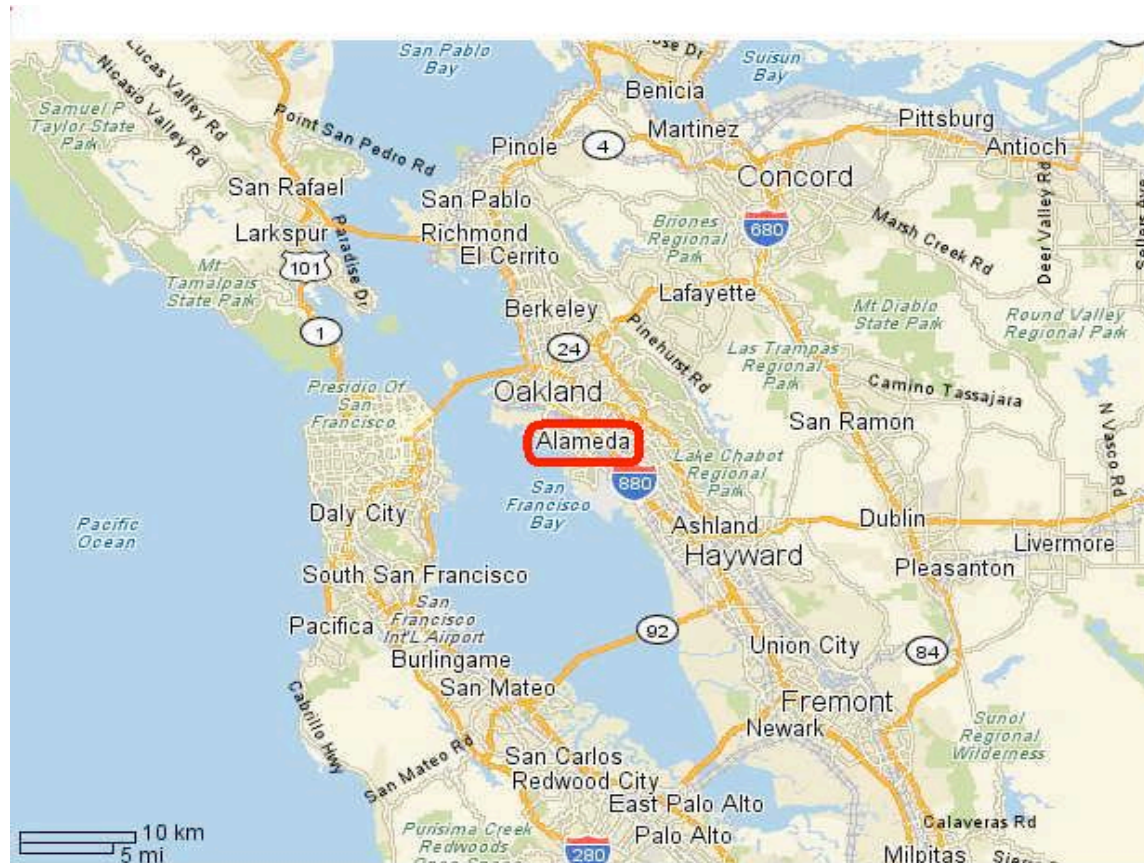
- **Overview of Alameda Power & Telecom**
- **Energy efficiency targets for AB2021**
- **Program Planning**
- **Existing Programs**
- **Future Programs**
- **Measurement and verification**
- **Resource Planning**





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## Who We Are



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## ***What We Do***

- **Municipal Enterprise - City Department**
- **Electric Power – since 1887**
- **Cable Television – since 2001**
- **Internet Access – since 2001**
- **City of Alameda Public Utilities Board oversight**
- **Service Area 12.8 miles**
- **120 employees**



## ***What We Are***

- **Member of Northern California Power Agency (NCPA)**
- **Winter Peak - 70 MW**
- **Annual Energy Use - 407,300 MWh**
- **Very little residential and commercial air-conditioning**
- **Low greenhouse gas emissions, 60% less than PG&E - 39,173 tons CO<sub>2</sub> or 0.10025 tons/MWh for 2005**
- **Rates are 13.5% less than PG&E**
- **Avoided cost < \$ 0.10/kWh**



## ***Alameda Power & Telecom Customers and Loads 2007***

<b><u>Type</u></b>	<b><u>No. of Customers</u></b>	<b><u>% of Total System Load</u></b>
Residential	30,000	35%
Commercial	3,800	61%
Industrial	0	0%
Distribution System Loss	N.A.	4%
Total	33,800	100%





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## POWER CONTENT LABEL

ENERGY RESOURCES	2007	2006 CA
	System Average (projected)	POWER MIX** (for comparison)
<b>Eligible Renewable</b>	<b>55%</b>	<b>5%</b>
-- Biomass & waste	7%	<1%
-- Geothermal	41%	4%
-- Small hydroelectric	1%	<1%
-- Solar	<1%	<1%
-- Wind	6%	<1%
<b>Coal</b>	<b>8%</b>	<b>29%</b>
<b>Large Hydroelectric</b>	<b>27%</b>	<b>31%</b>
<b>Natural Gas</b>	<b>11%</b>	<b>35%</b>
<b>Nuclear</b>	<b>&lt;1%</b>	<b>&lt;1%</b>
<b>Other</b>	<b>&lt;1%</b>	<b>0%</b>
<b>TOTAL</b>	<b>100%</b>	<b>100.00%</b>

73.3% Alameda System Average is specifically purchased from" individual suppliers.

\*\* Percentages are estimated annually by the California Energy Commission based on electricity sold to California consumers during the previous year.

For specific information about this electricity product, contact  
**Company Name**. For general information about the Power Content  
Label, contact the California Energy Commission at 1-800-555-7794  
or [www.energy.ca.gov/consumer](http://www.energy.ca.gov/consumer).



## ***Alameda P&T Drivers***

- **Obligation to serve**
- **Financial considerations**
- **Portfolio diversity – including energy efficiency**
- **Transmission considerations**
- **Shared values**





## ***Energy Efficiency Program Planning***

- **Energy Efficiency should be viewed system wide**
  - Demand side
  - Transmission & Distribution systems
  - Supply side
- **Evaluation of distribution system efficiency potential in FY 2008**
- **Supply side efficiency projects at Geothermal Power Plants**

<i><b>Date Installed</b></i>	<i><b>Project</b></i>	<i><b>NCPA cost</b></i>	<i><b>Capacity Increase</b></i>
Sept. 1997	Effluent Injection Pipeline	\$9.5 million	20-25 MW
1996 & 2001	Re-blade turbines for lower pressure steam	\$8.0 million	15 MW
2003 & 2004	Increase Effluent Injection pipeline capacity	\$7.2 million	10-15 MW
Summer 2003	Horizontal Injection Well	\$2.5 million	10 MW
Fall 2006 & future	Injection well turbine	\$3 million	3 MW
		<b>\$30.2 million</b>	<b>58-68 MW</b>

## ***Energy Efficiency Targets – AB 2021***

- **NCPA members are using the Rocky Mountain Institute (RMI) Energy Efficiency Tool for CA utilities**
- **Preliminary feasible results for Alameda P&T are 760 MWh/year or 0.19% of loads per year at a cost of \$115,673/year**
- **Cumulative savings over 10 years will be 7,605 MWh**
- **RMI cost effective measures – limitations**
  - Use of CA system-wide data for Bay Area microclimate
  - Emphasis on air-conditioning
  - Many top measures not feasible



## ***Energy Efficiency Targets - Considerations for Alameda P&T***

- **Temporary Load-**
  - Maritime Administration ships and Coast Guard Cutters, among top 10 large customers - about 8% of load
  - Remediation of the Naval Air Station - 2<sup>nd</sup> largest customer will leave in 6 months.
  - Large dredging operations in estuary for 12 months only
- **Limit on Efficiency Potential of some new loads**
  - Four new Coast Guard Cutters
- **Overall Economic Recession**
  - Vacancy rate at business parks, almost 30%
  - Drop in energy intensity from 30 kWh/ft<sup>2</sup> in 2001 to 21 kWh/ft<sup>2</sup> in 2007 at business parks
  - Due to drop in revenues, Alameda P&T staff reduced by almost 15%, other operations costs also reduced

## ***Energy Efficiency Targets More Considerations***

- **One staff person for energy efficiency, low income programs, some power resource projects, and the new extensive new reporting requirements associated with SB1037 and AB2021.**
- **Clean up and development of former Alameda Naval Air Station is very slow.**
- **Growth is limited, Alameda is an island and is nearly built out.**

## ***Existing Energy Efficiency Programs***

- **From 1991 to present energy efficiency programs have reduced Alameda P&T's demand by 10% and annual energy use by 5%**
- **Past focus of energy efficiency programs**
  - Customer satisfaction
  - Provide the same or better programs as CA's IOU
  - Publicly owned buildings
  - New construction
  - All customers have equal opportunity to participate



## *Existing Energy Efficiency Programs*

### Residential

- Free energy audits
- Weatherization Cash Grants
- Energy Star Refrigerator Rebate & Recycle Program
- Compact Fluorescent Program
- Meter Lending

### Commercial

- Free energy audits
- Commercial Retrofit Program
  - Lighting
  - Air-Conditioning
- Commercial Customer Loan Program
- Key Accounts Grants



## ***Future Energy Efficiency Programs***

- **Proposed energy efficiency budget FY 2008 is \$371,000**
  - **RMI feasibility model results suggest only \$116,000**
  - **Proposed energy efficiency budget is from Public Benefits funds and Power Resources funds**
  - **Future Energy Efficiency Goals:**
    - Maintain existing programs, increase rebate levels?
    - Increase marketing efforts
    - Ensure all new load is energy efficient
    - Evaluate new efficient technologies
    - Develop partnerships
    - Monitor energy use of all public facilities
    - More emphasis on measurement & verification
    - Reduce staff time spent on CA state reporting requirements
    - Provide the same programs as by CA IOUs;
- - - *and more*



## *Measurement and Verification*

- **Goals**

- Verify expected savings
  - Measure customer satisfaction with programs
- **Continue existing databases of all rebates, measures, savings**
- **Continue to field verify all commercial measures**
- **Independent evaluation of more complex measures**
  - Compressed air systems
  - Variable frequency drives
- **Residential measures**
  - Proof of purchase for all rebates
  - Use existing data - Energy Star, Kema Study for SB1037 report
- **Customer surveys to evaluate satisfaction with programs**

## *Resource Planning – Current Status*

- Alameda P&T is fully resourced until 2013
- Anticipated energy requirements in 2013 are 11,000 MWh, in 2016 required new generation is 75,000 MWh, and in 2020 new required generation is 96,000 MWh
- More than 82% of our power resources are renewable - 55% eligible renewable
- The existing energy efficiency programs and the energy savings from Title 24 are included in our forecast
- Transmission is a major concern
- Future load growth varies between 0.8% and 3.2%



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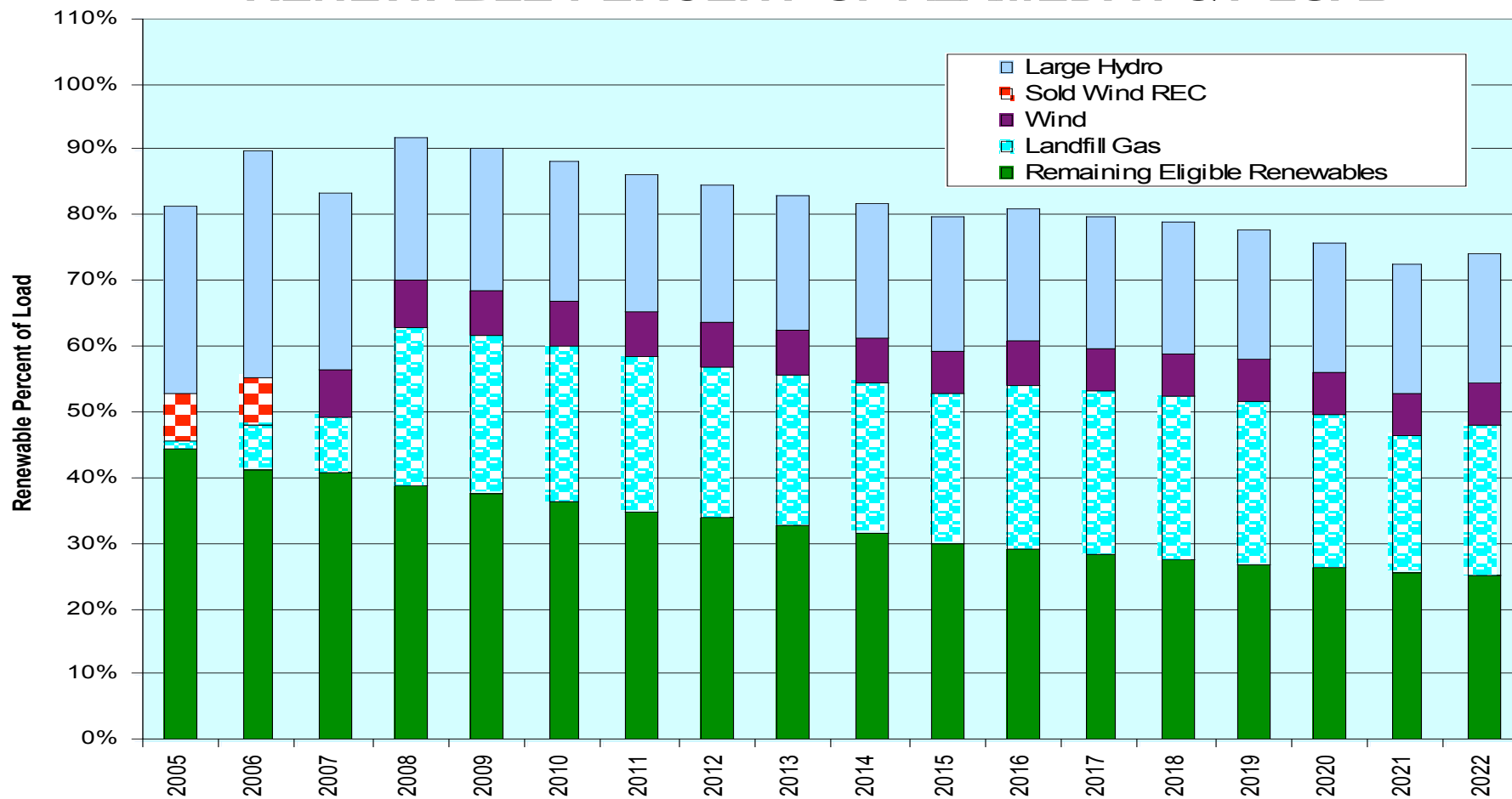
## WIND and Landfill Gas to Energy Projects





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## RENEWABLE PERCENT OF ALAMEDA P&T LOAD

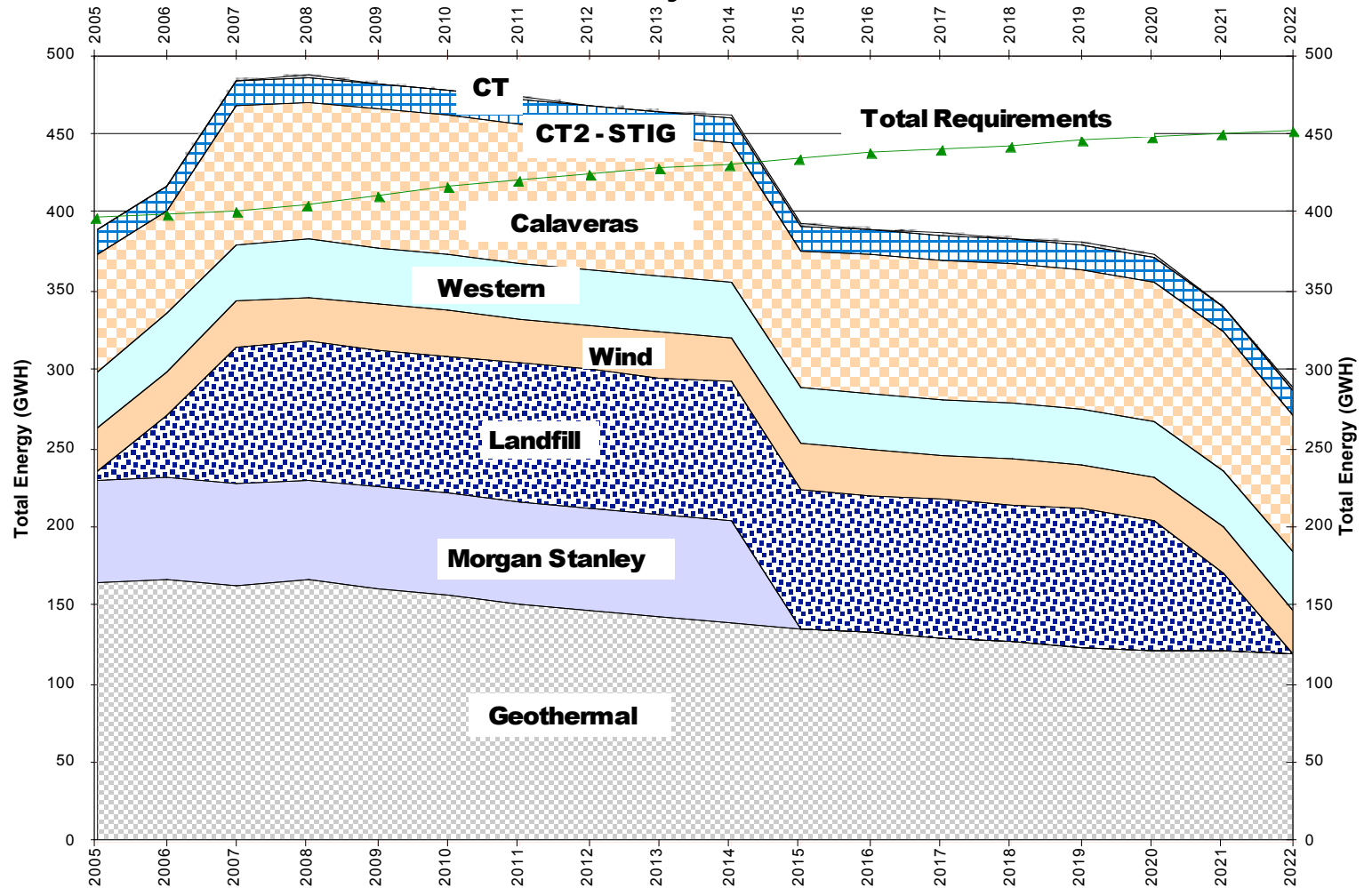


...SHARED VALUES.



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**20 YEAR MONTHLY ENERGY by RESOURCE PROJECTIONS**



...SHARED VALUES.

## ***Resource Planning - Future***

- **Energy efficiency a key component of resource planning**
- **Compliance with the CEC Loading Order**
  - Commercial lighting retrofits
  - Commercial new construction
  - Residential sector potential limited
- **New generation criteria**
  - Renewable
  - Close to service area
  - Competitively priced

